



/ Project documentation

2023-03-18_h30_a_plus_b

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Project number: ---
Location: Germany / Lörrach
Date: 3/18/2023

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Location: Germany / Lörrach
Grid voltage: 230V (230V / 400V)

System overview

10 x Tidesolar Technology Co. Ltd. TD-400MC-108HC (08/2022) (PV array 1)

Azimuth angle: -57 °, Tilt angle: 45 °, Mounting type: Roof, Peak power: 4.00 kWp



1 x SMA SB3.6-1AV-41

PV design data

Total number of PV modules:	10	Spec. energy yield*:	967 kWh/kWp
Peak power:	4.00 kWp	Line losses (in % of PV energy):	---
Number of PV inverters:	1	Unbalanced load:	3.68 kVA
Nominal AC power of the PV inverters:	3.68 kW	Annual energy consumption:	3,600 kWh
AC active power:	3.68 kW	Self-consumption:	993 kWh
Active power ratio:	92 %	Self-consumption quota:	25.7 %
Annual energy yield*:	3,869 kWh	Self-sufficiency quota:	27.6 %
Energy usability factor:	99.9 %	CO ₂ reduction after 20 years:	26 t
Performance ratio*:	85.6 %		

*Important: The yield values displayed are estimates. They are determined mathematically. SMA Solar Technology AG accepts no responsibility for the real yield value which can deviate from the yield values displayed here. Reasons for deviations are various external conditions, such as soiling of the PV modules or fluctuations in the efficiency of the PV modules.

Your energy system at a glance

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/ Energy system

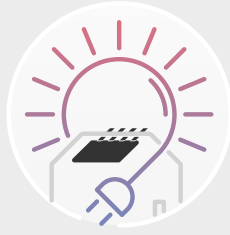
PV system	PV inverter 1 x SMA SB3.6-1AV-41	PV arrays 10 x Tidesolar Technology Co. Ltd. TD-400MC-108HC
Additional components	Energy management 1 x Sunny Portal	
System size	PV system 4.00 kWp	

/ Benefits



288 EUR

Feed-in tariff in the first year



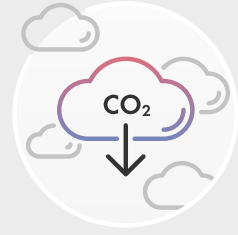
27.6 %

Self-sufficiency quota



23 EUR

Electricity costs saved per month



26 t

CO₂ reduction after 20 years

Total savings after 20 year(s): 12,793 EUR

Inverter designs

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Location: Germany / Lörrach

Ambient temperature:

Annual extreme low temperature: -10 °C

Average high Temperature: 20 °C

Annual extreme high temperature: 33 °C

/ Subproject Subproject 1

1 x SMA SB3.6-1AV-41 (PV system section 1)

Peak power:	4.00 kWp
Total number of PV modules:	10
Number of PV inverters:	1
Max. DC power ($\cos \varphi = 1$):	3.88 kW
Max. AC active power ($\cos \varphi = 1$):	3.68 kW
Grid voltage:	230V (230V / 400V)
Nominal power ratio:	97 %
Dimensioning factor:	108.7 %
Displacement power factor $\cos \varphi$:	1
Full load hours:	1051.4 h



PV design data

Input A: PV array 1

10 x Tidesolar Technology Co. Ltd. TD-400MC-108HC (08/2022), Azimuth angle: -57 °, Tilt angle: 45 °, Mounting type: Roof

	Input A:	Input B:
Number of strings:	1	
PV modules:	10	
Peak power (input):	4.00 kWp	---
Inverter min. DC voltage (Grid voltage 230 V):	100 V	100 V
PV typical voltage:	✓ 290 V	---
Min. PV voltage:	271 V	---
Max. DC voltage (Inverter):	600 V	600 V
Max. PV voltage	✓ 407 V	---
Inverter max. operating input current per MPPT:	15 A	15 A
Max. MPP current of PV array:	✓ 13.0 A	---
Inverter max. input short-circuit current per MPPT:	20 A	20 A
PV max. circuit current	✓ 13.7 A	---

PV/Inverter compatible

You get this inverter including SMA ShadeFix. SMA ShadeFix is a patented inverter software that automatically optimizes the yield of PV systems in any situation. Even under shading conditions.

Information

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- i PV systems with an installed power of a maximum 25 kWp must, according to the Renewable Energy Sources Act (EEG) 2021, be equipped with technical equipment with which the grid operator can remotely reduce the feed-in capacity in the event of grid overload at all times. Alternatively, the maximum active power feed-in of the PV system at the point of interconnection can be limited to 70% of the installed power.

✓ Subproject 1

✓ 1 x SMA SB3.6-1AV-41 (PV system section 1)

- i You get this inverter including SMA ShadeFix. SMA ShadeFix is a patented inverter software that automatically optimizes the yield of PV systems in any situation. Even under shading conditions.

Self-consumption (electricity)

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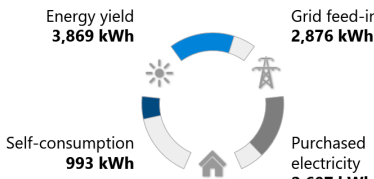
/ Result

Information on self-consumption

Load profile:	2 adults, both in full-time employment Private household with two people in full-time employment.
Annual energy consumption:	3,600 kWh

Increased self-consumption

Without increased self-consumption

Self-sufficiency quota	Distribution of PV energy	Details
<div><div>27.6 %</div></div>		Annual energy consumption3,600 kWh
Self-consumption quota		Annual energy yield3,869 kWh
<div><div>25.7 %</div></div>		Grid feed-in2,876 kWh
		Purchased electricity2,607 kWh
		Max. purchased electricity power7.23 kW
		Self-consumption993 kWh
		Self-consumption quota (in % of PV energy)25.7 %
		Self-sufficiency quota (energy consumption in %)27.6 %

Monthly values

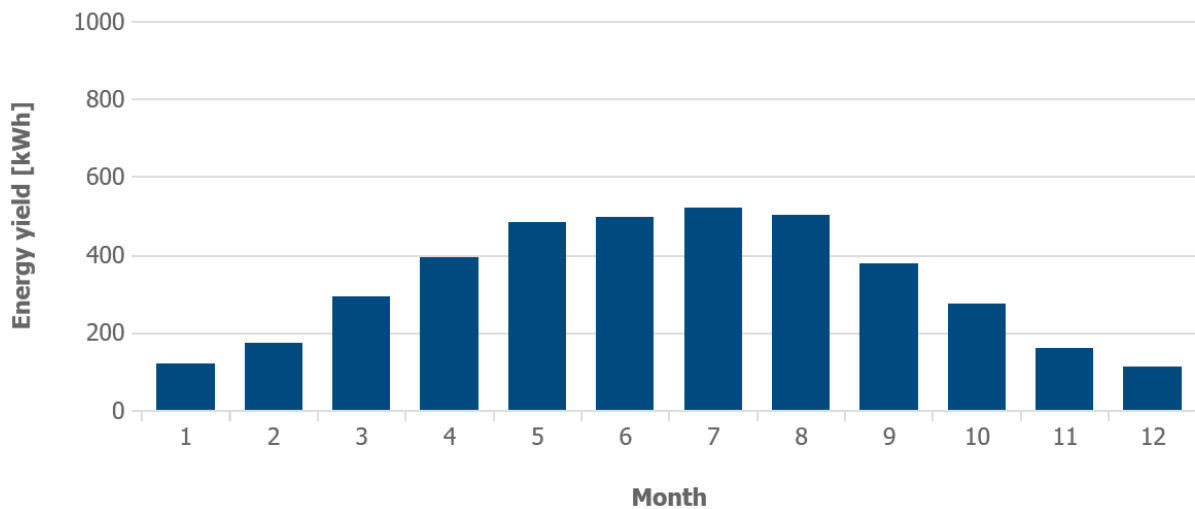
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/ Energy yield

Energy yield per month



Month	Energy yield [kWh]	Self-consumption [kWh]	Grid feed-in [kWh]	Purchased electricity [kWh]
1	117 (3.0 %)	46	71	282
2	172 (4.4 %)	58	114	249
3	291 (7.5 %)	84	207	237
4	390 (10.1 %)	104	286	192
5	480 (12.4 %)	127	354	187
6	493 (12.7 %)	113	380	173
7	517 (13.4 %)	116	401	181
8	498 (12.9 %)	74	423	113
9	374 (9.7 %)	90	283	194
10	272 (7.0 %)	75	197	248
11	157 (4.1 %)	54	103	266
12	109 (2.8 %)	53	56	286

Project images

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ne roof a plus b